

AMENDMENTS TO THE CLAIMS

1. (Currently amended) An isolated nucleic acid molecule encoding a secoisolariciresinol dehydrogenase protein ~~that, wherein the isolated nucleic acid molecule hybridizes to a nucleic acid molecule selected from the group consisting of SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7 and SEQ ID NO:9 or to the antisense complement of any member of the group consisting of a nucleic acid molecule consisting of the nucleic acid sequence set forth in~~ SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7 and SEQ ID NO:9 under conditions of 4 X SSC at 35°C.

2-7. (Canceled)

8. (Currently amended) A nucleic acid molecule of ~~Claim 7~~ Claim 1 encoding a secoisolariciresinol dehydrogenase protein ~~having~~ consisting of the amino acid sequence of any one of SEQ ID NO:2, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8 and SEQ ID NO:10.

9. (Currently amended) A nucleic acid molecule of ~~Claim 7~~ having Claim 1 consisting of the nucleic acid sequence of any one of SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7 and SEQ ID NO:9.

10-17. (Canceled)

18. (Currently amended) A replicable expression vector comprising a nucleic acid sequence encoding secoisolariciresinol dehydrogenase ~~that, wherein the nucleic acid sequence hybridizes to a sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7 and SEQ ID NO:9, or to the antisense complement of any member of the group consisting of SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7 and SEQ ID NO:9~~ under conditions of 4 X SSC at 35°C.

19. (Canceled)

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20. (Currently amended) A replicable expression vector of Claim 18 comprising a nucleic acid sequence encoding a secoisolariciresinol dehydrogenase ~~having the biological activity of a protein having the~~ consisting of an amino acid sequence selected from the group consisting any one of SEQ ID NO:2, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8 and SEQ ID NO:10.

21. (Currently amended) A host cell comprising a replicable expression vector comprising a nucleic acid sequence encoding a secoisolariciresinol dehydrogenase, wherein the nucleic acid sequence hybridizes to the complement of SEQ ID NO:1 under conditions of 4 X SSC at 35°C of any one of Claim 18, Claim 19 or Claim 20.

22-23 (Canceled)

24. (New) A nucleic acid molecule of Claim 9 consisting of the nucleic acid sequence set forth in SEQ ID NO:1.

25. (New) A nucleic acid molecule of Claim 9 consisting of the nucleic acid molecule sequence set forth in SEQ ID NO:3.

26. (New) A nucleic acid molecule of Claim 9 consisting of the nucleic acid molecule sequence set forth in SEQ ID NO:5.

27. (New) A nucleic acid molecule of Claim 9 consisting of the nucleic acid molecule sequence set forth in SEQ ID NO:7.

28. (New) A nucleic acid molecule of Claim 9 consisting of the nucleic acid molecule sequence set forth in SEQ ID NO:9.

29. (New) An isolated nucleic acid molecule encoding a secoisolariciresinol dehydrogenase of Claim 1, wherein said isolated nucleic acid molecule hybridizes to the complement of SEQ ID NO:1 under conditions of 2 X SSC at 55°C for 15 minutes.

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30. (New) A replicable expression vector of Claim 18 wherein the nucleic acid sequence encodes a secoisolariciresinol dehydrogenase and hybridizes to the complement of SEQ ID NO:1 under conditions of 2 X SSC at 55°C for 15 minutes.

31. (New) A host cell of Claim 21 wherein the nucleic acid sequence encodes a secoisolariciresinol dehydrogenase and hybridizes to the complement of SEQ ID NO:1 under conditions of 2 X SSC at 55°C for 15 minutes.

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